

To the Environmental Protection Agency from a Maine physician:

The EPA must be true to it's mission and fight to the bitter end against the "cash and carry" proposals the Bush administration has adopted from secret industry memos. We in Northern New England have a huge stake in this since much of the toxic mercury that rains down on us originates in Pennsylvania and a few other big coal states upwind. The Bush administration will enshrine "Clear Skies" into law unless government agencies sworn to protect public health dig in to protect the people from these assaults as they did against arsenic in our drinking water!

Mercury is a persistent poison which is concentrated many thousand times as it moves up the food chain into the bodies of "top predators"- loons, eagles, Florida panthers- and mothers and babies. Your new EPA guidelines, based on the latest research, indicate 600,000 babies yearly are at risk of a wide range of developmental and learning disorders from mercury. The risks continue into early childhood.

Mercury poisons our bodies by interfering with proteins, which are the machinery of all cells. They orchestrate every move of the dance of life. Proteins are long strings of smaller molecules known as amino acids that must fold up like origami after creation, then bind to other proteins or chemicals in our cells. They must maintain their shape perfectly to do their jobs. Mercury deforms the shapes of proteins.

Proteins do an amazing number of different jobs. They transport materials into and throughout our bodies, and convert food into energy. They enfold and protect the DNA double spiral staircase. They form the delicate spindles that pull the chromosomes into the two daughter cells after division. On immune system cell surfaces, they recognize and help engulf invading microbes. They help us perceive our environment and survive through our five special senses.

One of the most amazing things proteins do is control brain development. The brain does not just start out as a single cell and grow ever larger. Brain cells actually move around in the embryonic brain. Some cells are killed off by others. Brain cells send out axons and dendrites that hook up with other very specific neurons which are often many inches away. All these actions must happen at very precise times, measured in single days or even hours. At every step proteins on the surface of cells and their outgrowing axons and dendrites must sense their environment. They react to minute traces of messenger chemicals released by other brain cells that tell them where they are and where to go. Thousands of such events happen during thousands of moments that are "windows of vulnerability", during which bad things can happen.

Each gene makes a protein that interacts with many other proteins. Fetal brain development is like a symphony with a hundred thousand instruments. Each must

come in at the perfect time and the perfect pitch or you get a damaged child. This damage can often be detected by sophisticated psychological tests such as "The Boston Naming Test". These children can often look superficially normal but have problems with hearing or motor skills and later problems with language, attention, and memory. They are often marginalized and end up in special ed, in prison, and on the welfare rolls.

Field research summarized in a recent report by the Biodiversity Research Institute shows multiple adverse effects of mercury on various fish-eating birds, such as our beloved Maine loon. Loon fertility in Maine lakes can be 40% reduced because of mercury blown in on the prevailing winds from the Midwest. Stress hormone levels have been shown to increase as mercury increases. No reproduction occurs when mercury levels in fish are over a certain threshold. Loon parents with high mercury levels will spend less time sitting on their eggs and chicks warming and protecting them, less time foraging to feed them, and less time in generally high energy activities needed to support the next generation. They rest more or swim aimlessly in front of the nest. Present mercury levels can even cause abnormal loon feathers. Some fishing birds like the Great Egret have been shown to have problems catching fish. This is felt to be due to difficulty seeing. Some fish species with high mercury levels have been shown to have trouble avoiding predators.

The present administration has a long history of ignoring science in favor of short term profits for friends in industry. The EPA must help them accept the truth!

Sincerely,

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Maine Physicians for Social Responsibility, Steering Committee

Natural Resources council of Maine, Board of Directors

National Wildlife Association, Maine Representative to Annual Meeting March
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